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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,545	10/06/2003	Michael S. Choi	06558/011002	3325

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EXAMINER

NEWVILLE, TONI E

ART UNIT PAPER NUMBER

3671

DATE MAILED: 05/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,545

Applicant(s)

CHOI; MICHAEL S.

Examiner

Toni Newville

Art Unit

3671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/17/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3-15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson, GB 1596330, in view of Moore, US 6062313.

Regarding claims 3, 4, 6, 13, 14, and 17, Thompson discloses a method for developing a sub-sea hydrocarbons field, comprising:

- Liquefying natural gas aboard a vessel using a liquid coolant aboard the vessel to obtain liquefied natural gas (page 1 lines 56-63);
- Transporting the liquefied natural gas to an onshore terminal (page 2 lines 43-45);
- Re-gasifying the liquefied natural gas (page 3 lines 9-17); and
- Obtaining a new batch of liquid coolant using energy recovered from the re-gasifying the liquid natural gas (page 3 lines 24-27).

Thompson fails to disclose de-gasifying hydrocarbons obtained from the sub-sea hydrocarbons field to produce oil and gas, and conveying the produced oil to a storage tank on the seabed.

Like Thompson, Moore discloses a method and system for developing a sub-sea hydrocarbons field, including conveying produced gas to a vessel (26). Unlike Thompson, Moore further discloses de-gasifying hydrocarbons obtained from the sub-sea hydrocarbons field to produce oil and gas (column 6 lines 29-35 and column 5 lines 20-25), and conveying and storing the produced oil to a storage tank (40) on the seabed (Fig. 1) (claims 3, 6, 13 and 17). Moore also discloses the produced gas being conveyed to the vessel via a riser (Fig. 1, column 3 lines 40-41) (claims 4 and 14).

Given the suggestion in Moore, it would have been obvious to one of ordinary skill in the art to incorporate the fluid separation and seabed oil storage method and system taught in Moore into the method and system of Thompson because most natural gas fields have associated oil production that must be stored or piped to shore (Thompson; page 16-19), and seabed tanks provide an economical, environmentally-safe, and transportable storage means.

Regarding claims 5 and 15, Thompson discloses pre-treating the produced gas at a natural gas pre-treating facility before liquefying (page 1 lines 69-75).

Regarding claim 7, Thompson discloses the method further comprises liquefying a new batch of natural gas using the new batch of liquid nitrogen aboard the vessel (page 2 lines 48-51).

Regarding claim 8, Thompson discloses one of a plurality of storage tanks aboard the vessel is inherently empty to receive an initial portion of the liquefied natural gas (page 2 lines 43-45).

Regarding claim 9, Thompson discloses that the re-gasifying the liquid natural gas is performed at the onshore terminal (page 2 lines 77-78 and page 3 lines 9-17)

Regarding claim 10, Thompson discloses that the re-gasifying of the liquefied natural gas produces high pressure gas (page 3 lines 17-22).

Regarding claim 11, Thompson discloses the method further comprises sending the high pressure gas to a pipeline (page 3 lines 30-34).

Regarding claim 12, Thompson discloses transporting the liquefied natural gas to the onshore terminal is performed using the vessel (page 2 lines 45-46).

Regarding claim 18, Thompson further discloses the method of claim 3 further comprises transporting the new batch of liquid nitrogen offshore aboard the vessel inherently using a plurality of storage tanks (page 2 lines 40-48).

3. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thompson, GB 1596330, in view of Moore, US 6062313, as applied to claim 14 above, and further in view of Giannesini et al., US 5295546.

Thompson and Moore disclose a combination of systems for developing an oil and gas field as described above with respect to claim 14, but fail to disclose a power and control buoy configured to provide electric power and control functions for the sub-sea separation system.

Like the combination, Giannesini discloses a system for developing an oil and gas field. Unlike the combination, Giannesini further discloses a power and control buoy configured to provide electric power and control functions for sub-sea operations (column 7 lines 1-8).

Given the suggestion in Giannesini, it would have been obvious to one of ordinary skill in the art to include a power and control buoy in the system of the combination of Thompson and Moore because providing power and control via a buoy allows for continuous electrical power to sub-sea operations, even when the vessel is transporting liquefied natural gas to shore.

Response to Arguments

4. Applicant's arguments filed 3/17/2006 have been fully considered but they are not persuasive.

The applicant has argued in page 11 of the remarks that the Moore reference does not constitute analogous art because the Moore reference is directed to well drilling and the Thompson reference is directed to production. However, Moore specifically notes that the device described therein may be used in well production applications, see column 6 lines 29-35: "production from one or more wells can be stored in one or more of the tanks that are positioned on the subsea floor or on land and connected to the wells." Like Thompson, Moore describes the device as being usable in a subsea hydrocarbon production environment, thereby making the Moore reference analogous art. It therefore would have been obvious to one of ordinary skill in the art to combine the Thompson and Moore references because most natural gas fields have associated oil production that must be stored or piped to shore, and seabed tanks provide an economical, environmentally-safe, and transportable storage means.

Additionally, production fluids inherently contain entrained gas, and Moore describes entrained gas as being separable and conveyable directly to a platform vessel, as described in column 5 lines 20-25. While Moore does not specifically state a process of separating gas from produced hydrocarbons, one of ordinary skill in the art can reasonably infer that produced fluids will be separated with the separating apparatus 48, with the produced gas flowing up to the vessel and produced oils being

held in the tank 40, as suggested by Moore in column 5 lines 20-25 and column 6 lines 29-35. It is irrelevant as to whether or not such gas separation is "temporary" as there are no claim limitations describing the timing or extent of such separation. The examiner points out that, contrary to applicant's remarks on page 13 ("Conveyance of Produced Oil to a Seabed Storage Tank Not Disclosed in Moore"), Moore specifically describes in column 6 lines 29-35 conveying produced oil to a seabed storage tank: "production from one or more wells can be stored in one or more of the tanks 40 that are positioned on the subsea floor." Conveying fluids from the well to the tank would inherently require a conveyance structure such as inlet conduit 44 described in Moore.

Regarding the applicant's itemized comparison (pages 14 and 15 of remarks) of Claim 1 and its dependent claims 3-6 in Moore to the applicant's claimed invention, the examiner points out that references used to reject an applicant's claims are used as prior art in terms of their full disclosure, including the description and drawings, and mere lack of congruence between claims of a prior art patent and claims of an application will preclude only a double patenting rejection.

Given the lack of persuasiveness of the applicant's arguments, the examiner has reworded the rejection of claims 3-18 to include the newly amended limitations to claims 3, 13 and 17, but has otherwise repeated the previous office action's 103(a) rejection of Thompson in view of Moore.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toni Newville whose telephone number is (571) 272 - 1548. The examiner can normally be reached on Monday - Friday 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will can be reached on (571) 272-6998. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Toni Newville
May 16, 2006



THOMAS B. WILL
Supervisory Patent Examiner
Group 3600